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ECOLOGY AND ENVIRONMENT INC.

DALLAS, TEXAS

MEMORANDUM

TO: Keith Bradley, Region VI, RPO
THRU: K. H. Malone Jr., FITOM *KHM*
FROM: Rick Horne, FIT Chemist *RB*
DATE: June 12, 1987
SUBJ: Sampling Report for the Dioxin Survey of Exxon Chemicals Corporation,
USA, Houston, Texas (TX0082684002)

SUPERFUND
FILE
DEC 16 1991
REORGANIZED

The Exxon Chemicals Corporation, USA, (formerly Exxon Chemicals, Americas) 8230 Stedman Street, Houston, Texas, 77029, Latitude 29 45' 00"N, Longitude 95 16' 45" W, was the subject of a sampling inspection conducted March 2 - 5, 1987. The 97 acre facility is located a quarter mile northeast of the intersection of McCarty Road and Clinton Drive north of the Houston Ship Channel (see Figure 1 for site location).

The samples from the facility were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin (commonly known as dioxin). The Exxon facility is a formulation plant that used the dioxin precursor, 2,4,5-trichlorophenol and its sodium salts from 1964 through 1979 for various anti-algae products. 747,000 lbs. of 2, 4, 5-trichlorophenol was purchased and used at the facility. This represents approximately 0.25% of the total production of Exxon's products for those years. No waste water generated from this production was reported to be discharged from the facility. From 1964 through 1977, the waste water from the above formulation was combined with the other wastewater streams from the facility and channeled to a waste lagoon. From there, the waste was sprayed over a 12 acre landfarm via a sprinkler system. This landfarm system allowed microdegradation and solar UV photolysis of the chemicals. Periodically, the landfarm soil was disked under to allow further microbiological activity upon the waste. In 1977, the landfarm was closed and the surrounding berm consisting of clay and shell material was leveled over the landfarm. This clay cap varied from 6 inches to 2 feet thick. A layer of top soil and grass was then applied over the cap. After the closure of the landfarm, waste streams were collected in an existing tank that was converted to a BioTox tank to allow aerobic and anaerobic microorganisms to degrade the waste products. From that point, the tank was periodically drained into private tanker trucks and transported to south Texas for deep well injection.

The sampling team consisted of the following FIT personnel:

R. Horne, E&E Chemist, Team Leader, Site Safety Officer, Grid Layout
R. Roblin, E&E Geologist, Paperwork, Grid Layout
T. Lensing, E&E Biologist, Paperwork, Decontamination
J. Trusley, E&E Equipment, Sampler, Decontamination
B. Park, E&E Biologist, Sampler
D. Pandak, ICF Environmental Scientist, Grid Layout, Sampler
T. Pierce, ICF Chemist, Sampler
J. Phillips, ICF Geologist, Sampler

Richard Greer, Environmental Coordinator-Energy Chemicals, served as the liaison between Exxon Chemicals and the sampling team.

Since Exxon Chemicals is a formulation facility, the sampling protocol fell under the category of a Tier 3 survey for dioxin. The sampling followed two distinct plans as dictated by the Tier 3 protocol. Biased sampling was conducted on the active areas of the facility at points where the dioxin precursor was either handled or at points where there was a possible migratory pathway to the landfarm system. The inactive landfarm was surveyed off in 50 ft. by 50 ft. grids and numbered sequentially. The specific grids to be sampled were determined using the random number generator on a IBM PC/XT computer (attached program "RickRandom"). The grids that were selected were further randomized to determine the depths of the samples. The depths of 3 ft, 2 ft and surface were arbitrarily chosen due to the lack of migration/percolation of dioxin because of that chemicals polar nature and its ability to coordinatively bond with the soil. If dioxin was present, it would remain at its present level for an extended period of time. In addition, this sampling mission was more concerned with whether dioxin was present near the surface of the landfarm and if there was runoff from the landfarm. See attachment A for specific sampling locations and the sketch of the facility.

SUMMARY OF ANALYTICAL RESULTS

The samples collected were sent in three separate batches from each day of sampling. All samples were sent to a SMO designated CLP laboratory for analysis. FIT requested a 30-day turnaround for the data due to the medium priority requested by the Region VI EPA.

EPA Houston data reviewers qualified the data as provisional due to incomplete deliverables from the lab but, they indicated that the quantifications from the actual analysis are valid due to the performance check compounds, the calibrations, and native spike recoveries falling within the designated guidelines. All indications from the analysis show that no dioxin was present in the samples collected. See the dioxin summary sheets for the data results and respective detection limits.

RECOMMENDATIONS

From the results of the sampling of Exxon Chemicals, Corporation, there is no indication that dioxin is present on the facility. There is also no indication of dioxin migration off the facility. Therefore FIT recommends that no further action is warranted and also closing the case for this particular Tier 3 dioxin survey.

ATTACHMENT A

Additional Remark and/or Explanation

Sample #. Location and Description

1. North side of Masterson Street to be used as one of the required background samples.
 2. North side of Plummer Street to be used as one of the required background samples.
 3. North side of Stedman St. outside of front gate of Exxon. This is to represent a background sample.
 4. West side of property fence across from the receiving dock. Determines if there was migration of spills off site.
 5. Southwest corner of facility, 10-15 ft. outside of property. This indicates possible migration of chemicals if floods had occurred and pumps were not able to manage large amounts of water.
 6. 25-30 ft. east of sample #5. This to confirm migration of dioxin if flooding had occurred.
 7. Between train track and the northwest corner of the old shipping dock.
 8. Between train track and receiving dock #3. This is where 2,4,5-T was received for storage.
 9. Between train track and southwest corner of receiving dock.
- NOTE: Samples 7, 8, & 9 are from locations that are the most likely migratory paths of the precursor.
10. Vicinity of the sump pump.
 11. Sediment from the rain basin north of treatment tank.
 12. Sediment from the rain basin north of treatment tank.

ATTACHMENT A (CON.)

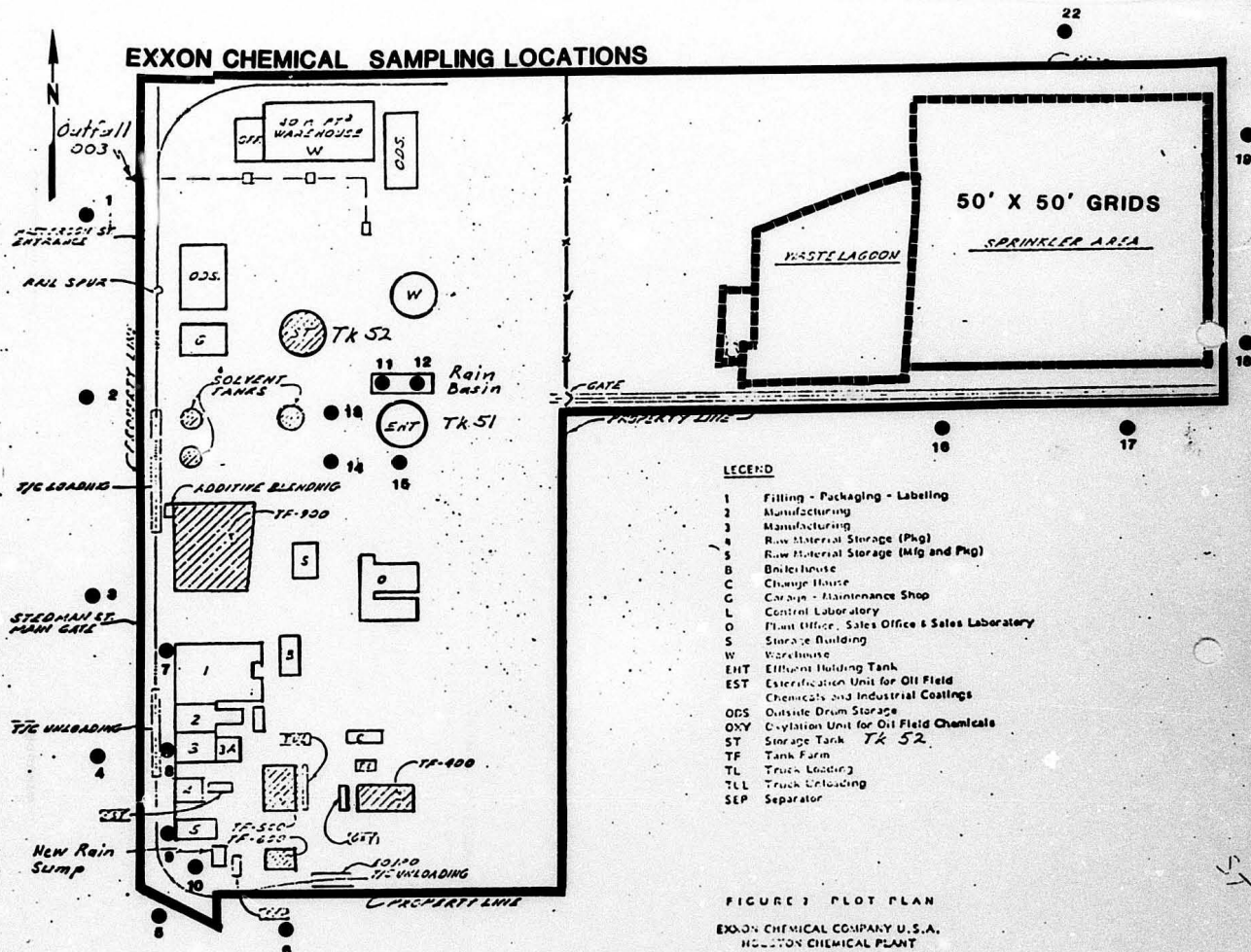
Additional Remark and/or Explanation

Sample #. Location and Description (Cont.)

13. Low lying area west of treatment tank and next to overspill pipe coming from the rain basin.
14. Same location as sample #13 but 50 ft. south. This is along path of flood waters.
15. 10-20 ft. south of treatment tank. Indication of high waters at one time in the area, may be a route for migration of chemical.
17. 200 ft. west of S.E. corner of property on land owned by Houston Port Authority.
18. 200 ft. north of southeast corner between property line and creek.
19. 200 ft. south of N.E. corner of landfarm between property line and creek.
22. One sample 10-20 ft. north of fence, off site from the landfarm. Same reason as samples #16-18.
- 23-Hexane Rinsate blanks (one per 24 samples).
- 25
- 26- Dioxin Performance evaluation samples.
- 28

The remaining samples consisted of the grid samples from the landfarm and were numbered according to the grid number.

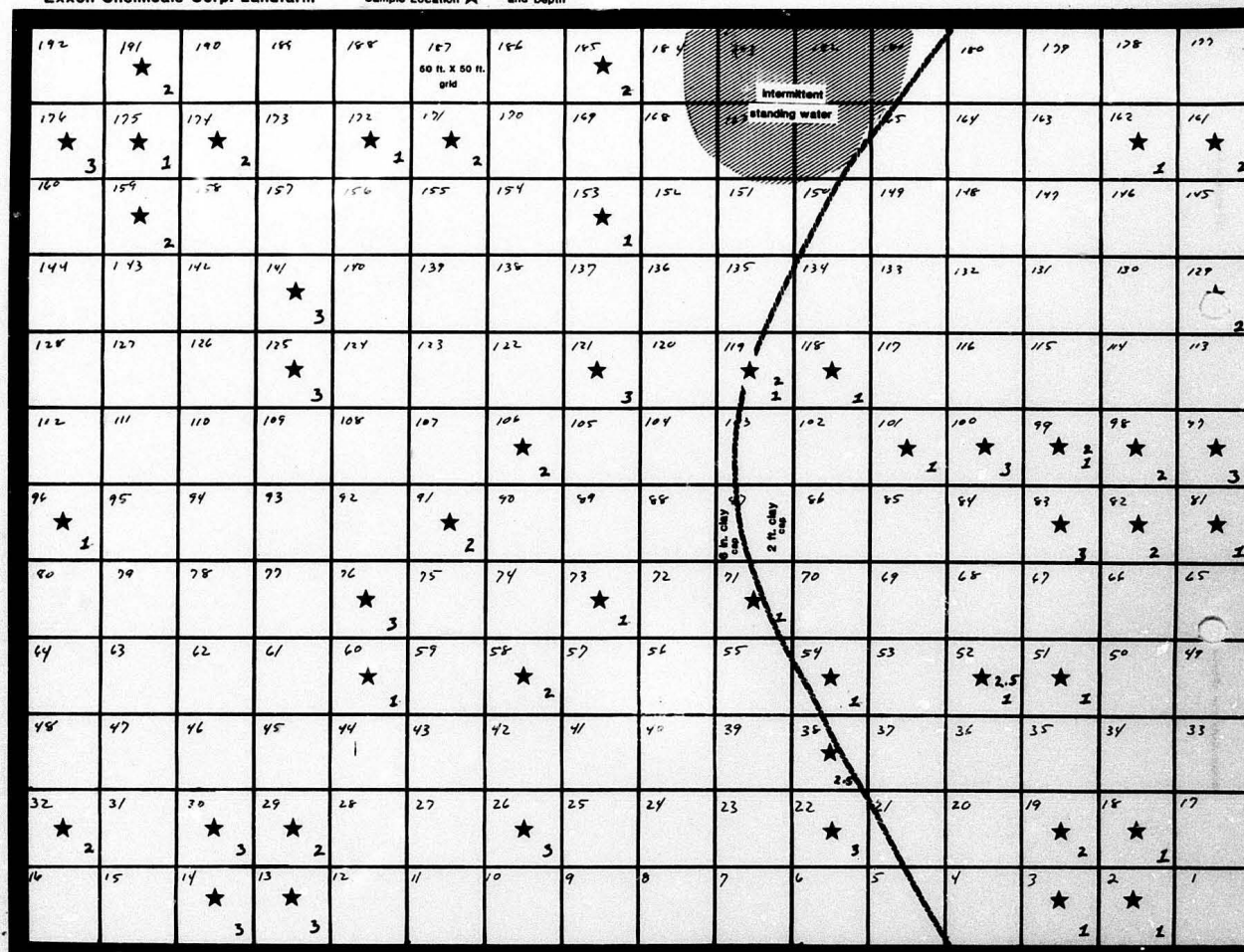
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Exxon Chemicals Corp. Landfarm

Sample Location ★ and Depth



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DIOXIN ANALYSIS SUMMARY

CASE NUMBER: 2738F SITE NAME/CODE: EXXON CHEMICAL PAGE 1 OF 3
TXD082684002

CONCENTRATION-PPB

EPA Sample Number	Station Number	Batch Number	Sample Station Location	Sample Results	Sample Detection Limit	Comments
22001	01	1	N. SIDE MASTERSON	ND	0.04	
22002	02	1	N. SIDE PLUMMER	ND	0.10	
22003	05	1	SW CORNER OUT PROPERTY	ND	0.17	
22004	06	1	251 E. OF STA 5	ND	0.11	
22007	07	1	RR TRACKS NW OF DOCK	ND	0.55	
22008	08	1	RR TRACKS BY DOCK	ND	0.43	
22009	09	1	RR TRACKS SW DOCK	ND	0.70	
22010	10	1	SUMP PUMP AREA	ND	0.08	
22011	11	1	RAIN BASIN SEDIMENT	ND	0.23	
22012	12	1	RAIN BASIN SEDIMENT	ND	0.15	
22013	13	1	W OF BIOTOX TANK	ND	0.04	
22014	14	1	50' S OF STA 13	ND	0.03	
22015	15	1	20' S OF BIOTOX TANK	ND	0.16	
22017	23	1	TCE RINSATE	ND	0.03	
22016	26	1	PERFORMANCE SPIKE	0.78		
21113	27	1	PERFORMANCE SPIKE	0.71		
21101	29	1	GRID 18/SURFACE	ND	0.03	
21102	30	1	GRID 3/ SURFACE	ND	0.04	
21103	31	1	GRID 2 /SURFACE	ND	0.05	
21104	32	1	GRID 73/SURFACE	ND	0.10	
21105	33	1	GRID 54 SURFACE	ND	0.03	
21106	34	1	GRID 51 SURFACE	ND	0.02	
21107	35	1	GRID 52 SURFACE	ND	0.05	
21108	36	1	GRID 71 SURFACE	ND	0.09	
21109	37	1	GRID 101/SURFACE	ND	0.06	
21110	38	1	GRID 99/ SURFACE	ND	0.04	
21111	39	1	GRID 118/SURFACE	ND	0.02	
21112	40	1	GRID 119/SURFACE	ND	0.03	
21114	41	1	GRID 96 /SURFACE	ND	0.07	
21115	42	1	GRID 175/SURFACE	ND	0.03	

ND-NOT DETECTED

EM-ESTIMATED MAXIMUM CONCENTRATION

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DIOXIN ANALYSIS SUMMARY

CASE NUMBER: 2738 F SITE NAME/CODE: EXXON CHEMICAL/HOUSTON PAGE 2 OF 3
TXD 082684002

CONCENTRATION-PPB

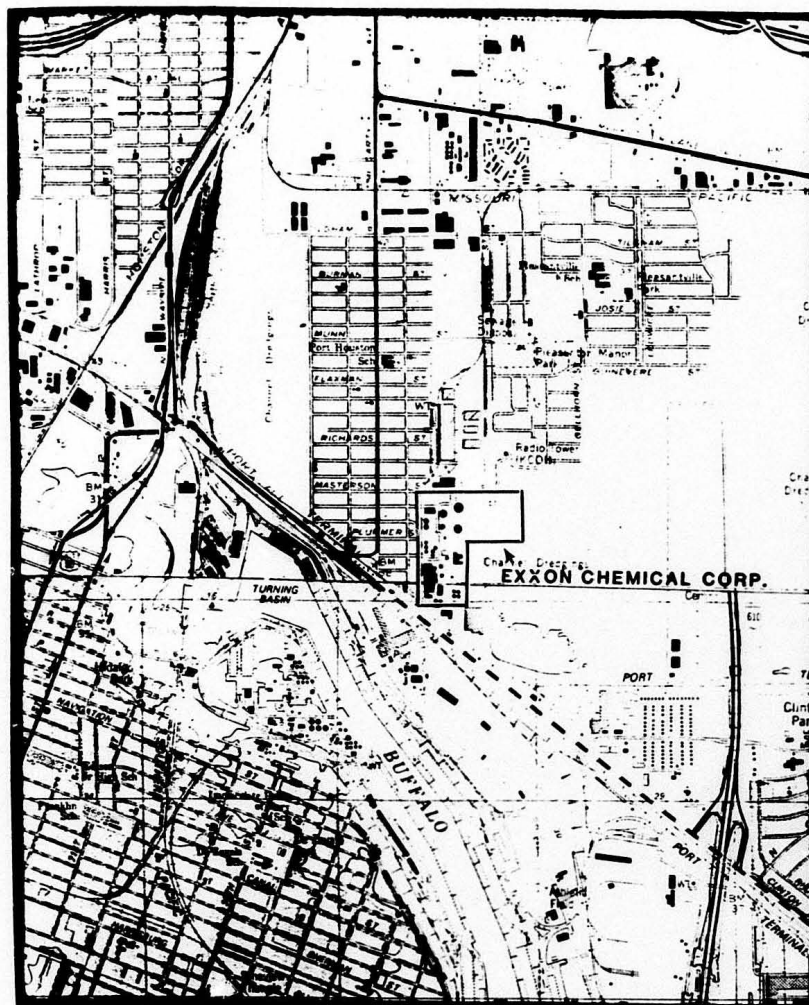
EPA Sample Number	Station Number	Batch Number	Sample Station Location	Sample Results	Sample Detection Limit	Comments
21116	43	1	GRID#172/SURFACE	ND	0.05	
21117	44	1	GRID#153 / SURFACE	ND	0.02	
21118	45	1	GRID#162 / SURFACE	ND	0.03	
20701	46	1	GRID#91/2' DEPTH	ND	0.01	
20702	47	1	GRID#106/ DEPTH	ND	0.07	
20703	48	1	GRID#58 / DEPTH	ND	0.04	
20704	49	1	GRID#119/ DEPTH	ND	0.06	
20705	50	1	GRID#99 / DEPTH	ND	0.22	
20706	51	1	GRID#98 / DEPTH	ND	0.13	
20707	52	1	GRID#82 / DEPTH	ND	0.09	
20709	53	1	GRID#19 / DEPTH	ND	0.04	
20710	54	1	GRID#32 / DEPTH	ND	0.27	
20711	55	1	GRID#29 / DEPTH	ND	0.08	
20708	24	1	TCE RINSATE	ND	0.06	
21019	03	2	BACKGROUND-STEDMAN	ND	0.04	
21001	56	2	GRID#38/2.5' DEPTH	ND	0.04	
21002	57	2	GRID#52/3' DEPTH	ND	0.11	
21003	58	2	GRID#13/3' DEPTH	ND	0.13	
21004	59	2	GRID#30/3' DEPTH	ND	0.07	
21005	60	2	GRID#14/3' DEPTH	ND	0.05	
21006	61	2	GRID#83/3' DEPTH	ND	0.02	
21011	62	2	GRID#141/3' DEPTH	ND	0.05	
21012	63	2	GRID#125/3' DEPTH	ND	0.03	
21016	64	2	GRID#26/3' DEPTH	ND	0.03	
21007	65	2	PERFORMANCE SPIKE	0.85		
21008	66	2	GRID#100/3' DEPTH	ND	0.11	
21009	67	2	GRID#97 3' DEPTH	ND	0.03	
21010	68	2	TCE RINSATE	ND	0.61	
21013	69	2	GRID#121/3' DEPTH	ND	0.03	

ND-NOT DETECTED

EM-ESTIMATED MAXIMUM CONCENTRATION

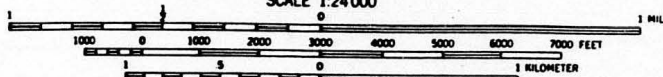
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Figure 1: Site Location



Adapted from USGS Quadrangles
Park Place, Settegast
Harris County, Texas
7.5 Minute Series (Topographic)

SCALE 1:24,000



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```
Program RickRandom;

Var
  X,
  RanNum,
  RanLim,
  R   : integer;
  Depth : String[20];

Begin
  ClrScr;

  Randomize;

  X := 0;

  WriteLn('  Input the number of Random Places you want');
  ReadLn(RanNum);

  WriteLn('  Input the Limit of the numbers ');
  ReadLn(RanLim);

  WriteLn('  Input Depth');
  ReadLn(Depth);

  WriteLn;

  WriteLn(1st, 'There will be ', RanNum, ' random numbers ');
  WriteLn(1st, 'From 0 to ', RanLim);
  WriteLn(1st, 'At a depth of ', depth);

  WriteLn;
  While X < RanNum
  Begin
    R := Random(RanLim);
    WriteLn(1st, 'Random number ', x+1, ' is : ', R);
    X := X + 1;
  end;

  WriteLn(1st, chr(12));

End.
```

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```
Program RickRandom;

Var
  X,
  RanNum,
  RanLim,
  R   : integer;
  Depth : String[20];

Begin
  ClrScr;

  Randomize;

  X := 0;

  Writein('  Input the number of Random Places you want');
  Readln(RanNum);

  Writein('  Input the Limit of the numbers ');
  Readln(RanLim);

  Writein('  Input Depth');
  Readln(Depth);

  Writeln;

  Writein(1st, 'There will be ', RanNum, ' random numbers ');
  Writein(1st, 'From 0 to ', RanLim);
  Writein(1st, 'At a depth of ', depth);

  Writeln;
  While X < RanNum
  Begin
    R := Random(RanLim);
    Writein(1st, 'Random number ', x+1, ' is : ', R);
    X := X + 1;
  end;

  Writein(1st, chr(12));

End.
```

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Surface

2
3
16
51
52
60
71
81
96
99
101
118
119
153
162
165
172

Three Feet

19
29
32
58
82
91
98
99
106
119
159
161
171
174
184
191

Six Feet

14
13
22
25
30
38
52
76
83
97
100
121
125
129
141
176

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There will be 17 random numbers
From 0 to 192

At a depth of Surface

Random number 1 is :	153
Random number 2 is :	99
Random number 3 is :	119
Random number 4 is :	51
Random number 5 is :	3
Random number 6 is :	165
Random number 7 is :	101
Random number 8 is :	162
Random number 9 is :	71
Random number 10 is :	18
Random number 11 is :	81
Random number 12 is :	96
Random number 13 is :	172
Random number 14 is :	52
Random number 15 is :	2
Random number 16 is :	118
Random number 17 is :	60

IF THE PAGE FILMED IS NOT
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There will be 16 random numbers
From 0 to 192

At a depth of Three Feet

Random number 1 is :	159
Random number 2 is :	82
Random number 3 is :	161
Random number 4 is :	91
Random number 5 is :	29
Random number 6 is :	15
Random number 7 is :	58
Random number 8 is :	32
Random number 9 is :	98
Random number 10 is :	174
Random number 11 is :	191
Random number 12 is :	99
Random number 13 is :	184
Random number 14 is :	106
Random number 15 is :	119
Random number 16 is :	171

IF THE PAGE FILMED IS NOT
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There will be 16 random numbers
from 0 to 192

At a depth of Six Feet

Random number 1 is :	100
Random number 2 is :	121
Random number 3 is :	14
Random number 4 is :	175
Random number 5 is :	123
Random number 6 is :	97
Random number 7 is :	26
Random number 8 is :	52
Random number 9 is :	13
Random number 10 is :	83
Random number 11 is :	129
Random number 12 is :	38
Random number 13 is :	30
Random number 14 is :	22
Random number 15 is :	76
Random number 16 is :	141

Exxon Chemical Corp.
Houston, Texas. 77029
pg 1 of 24

Photographer / Witness

R. Hone Joe Phlyp

Date / Time / Direction

3/3/87 9:22 North

Comments: Station 6, surface

South West corner of

Efflor perimeter. 25-30

ft. east of Sta. # 5

Photographer / Witness

R. Hone Joe Phlyp

Date / Time / Direction

3/3/87 9:17 North

Comments: Station 5, surface

Outside S.W. corner of

facility

Photographer / Witness

R. Hone Joe Phlyp

Date / Time / Direction

3/3/87 9:08 West

Comments: Station 2, surface

Background. North side

of Plummer Road

Exxon Chemical Corp.
Houston, Tex. 77029
pg 2 of 24

Photographer / Witness

R. Howe Joe Phillips

Date / Time / Direction

3/3/87 10:17 East

Comments: Station 8

Receiving area for
2,4,5-trichlorophenol

Photographer / Witness

R. Howe Joe Phillips

Date / Time / Direction

3/3/87 10:25 South

Comments: Surface - next
to sump pumps
Station 10

Photographer / Witness

R. Howe Joe Phillips

Date / Time / Direction

3/3/87 10:20 East

Comments: Sta. #9

Surface - south loading
dock



Exxon Chemical Corp.
Houston, Tex. 77029
pg. 3 of 24

Photographer / Witness

R. Horne Joe Phillips

Date / Time / Direction

3/3/87 10:49 North

Comments: Station 12

Sediment from collection
pond



Photographer / Witness

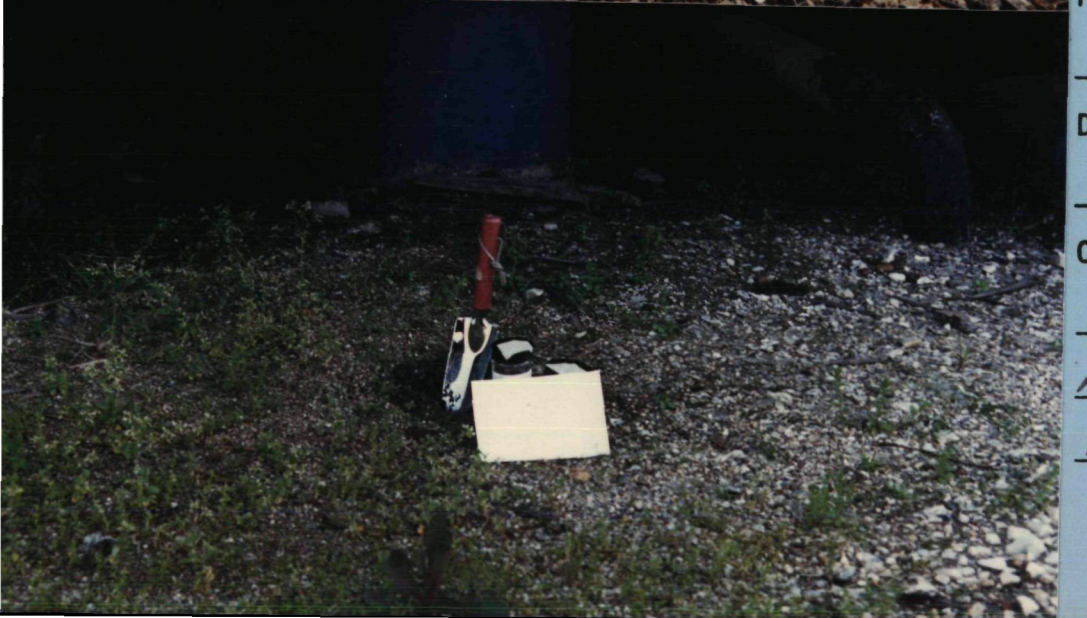
R. Horne Joe Phillips

Date / Time / Direction

3/3/87 10:58 North

Comments: Station 11

Sediment from collection
pond



Photographer / Witness

R. Horne Joe Phillips

Date / Time / Direction

3/3/87 10:32 East

Comments: Station 7

Between train track and the
N.W. corner of old shipping
dock.

Exxon Chemical Corp.
Houston, Tex. 77029
Pg 4 of 24

Photographer / Witness

R. Horne *[Signature]*

Date / Time / Direction

3/3/87 11:26 North

Comments: Surface - 20 ft.

south of collection pond
next to overflow pipe
from pond Sta. 13

Photographer / Witness

R. Horne *[Signature]*

Date / Time / Direction

3/3/87 11:36 North

Comments: Surface - 50 ft.

south of treatment tank
Sta. 14

Photographer / Witness

R. Horne *[Signature]*

Date / Time / Direction

3/3/87 11:31 North

Comments: Surface - 20 ft. S. of
collection pond next to overflow pipe
Station 13

Exxon Chemical Corp.
Houston, Tex. 77029
Pg. 5 of 24

Photographer / Witness

R. Horne Joseph Phully

Date / Time / Direction

3/3/87 1:00 PM North

Comments: Grid #91

2 ft.

Photographer / Witness

R. Horne Joseph Phully

Date / Time / Direction

3/3/87 1:05 North

Comments: Grid #106

2 ft.

Photographer / Witness

R. Horne Joseph Phully

Date / Time / Direction

3/3/87 11:36 North

Comments: Sta. 15,

20 ft S. of treatment tank

Exxon Chemical Corp.
Houston, Tex. 77029
Pg. 6 of 24

Photographer / Witness

R. Horne Joe Phillips

Date / Time / Direction

3/3/87 9 39 North

Comments: Grid 81

Surface

Photographer / Witness

R. Horne Joe Phillips

Date / Time / Direction

3/3/87 10 52 North

Comments: Grid 51

Surface

Photographer / Witness

R. Horne Joe Phillips

Date / Time / Direction

3/3/87 9 31 North

Comments: Grid 60

Surface



Exxon Chemical Corp.
Houston, Tex. 77029
pg. 7 of 24

Photographer / Witness

R. Horne J. Phillips

Date / Time / Direction

3/3/87 9:31 North

Comments: Grid 60

Surface



Photographer / Witness

R. Horne J. Phillips

Date / Time / Direction

3/3/87 10:18 North

Comments: Grid 18

Surface



Photographer / Witness

R. Horne J. Phillips

Date / Time / Direction

3/3/87 9:35 North

Comments: Grid 23

Surface



Exxon Chemical Corp.
Houston, Tex. 77029
Pg. 8 of 24

Photographer / Witness

R. Horne prop. Philby

Date / Time / Direction

3/3/87 1100 East

Comments: Aired 7/

Surface



Photographer / Witness

R. Horne prop. Philby

Date / Time / Direction

3/3/87 1107 South

Comments: Aired 10/

Surface



Photographer / Witness

R. Horne prop. Philby

Date / Time / Direction

3/3/87 1054 South

Comments: Aired 52

Surface

Exxon Chemical Corp.
Houston, Tex. 77029
pg. 9 of 24

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1127 West

Comments: Grid 118

Surface

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1135 West

Comments: Grid 119

Surface

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1113 West

Comments: Grid 99

Surface



175 - Surface
3/5/87
1242 - 1245

Exxon Chemical Corp.
Houston, Tex. 77029
pg 10 of 24

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1245 West

Comments: Aired 175

Surface



172 - Surface
3/5/87
1249 - 1251

Photographer / Witness

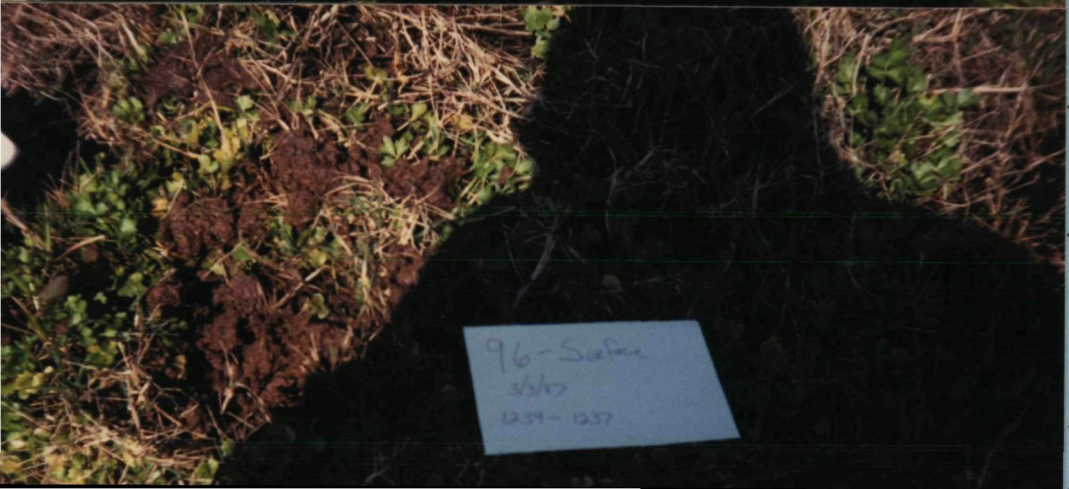
R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1251 West

Comments: Aired 172

Surface



96 - Surface
3/5/87
1234 - 1237

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1237 West

Comments: Aired 96

Surface



Exxon Chemical Corp.
Houston, Tex. 77029
pg 11 of 24

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 14:27 West

Comments: Grid #82

2 ft.



Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1:18 North

Comments: Grid #58

2 ft.



Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1422 North

Comments: Grid 98

2 ft.



Exxon Chemical Corp.
Houston, Tex. 77029
pg. 12 of 24

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1434 East

Comments: Grid 29

2 ft.



Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/4/87 10:49 East

Comments: Grid # 125

3 ft.



Photographer / Witness

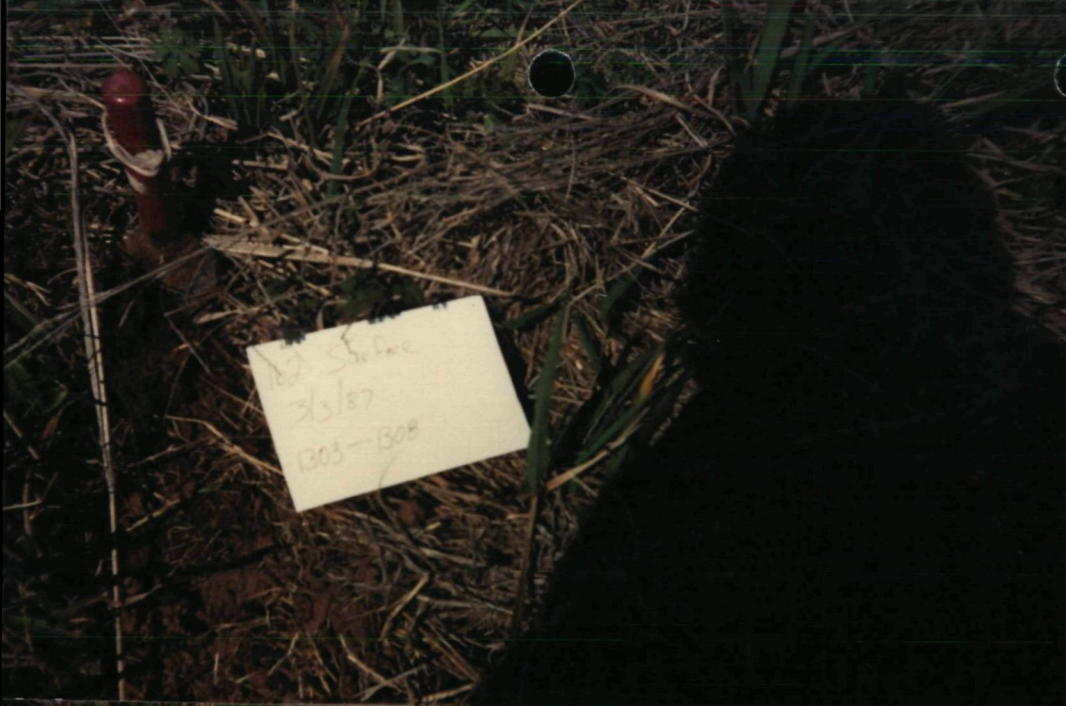
R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1412 North

Comments: Grid 99

2 ft.



Exxon Chemical Corp.
Houston, Tex, 77029
Pg. 13 of 24

Photographer / Witness

R. Home / Terry D. Pierce

Date / Time / Direction

3/3/87 13:08 West

Comments: Aird 162

Surface



Photographer / Witness

R. Home / Terry D. Pierce

Date / Time / Direction

3/3/87 1355 South

Comments: Aird 19

Surface



Photographer / Witness

R. Home / Terry D. Pierce

Date / Time / Direction

3/3/87 909 North

Comments: Aird 2

Surface



Exxon Chemical Corp.
Houston, Tex. 77029
pg. 114 of 24

Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 1415 East

Comments: Airl 32

2 ft



Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 9:02 North

Comments: Surface - Background

Northside of Masterson St.

across from Exxon

Station 1



Photographer / Witness

R. Horne / Terry D. Pierce

Date / Time / Direction

3/3/87 127 East

Comments: Airl 129

2 ft.



Exxon Chemical Corp.
Houston Tex. 77029
pg. 15 of 24

Photographer / Witness

A. Horne / Terry D. Pierce

Date / Time / Direction

3/4/87 925 West

Comments: Arid 38

2.5 ft



Photographer / Witness

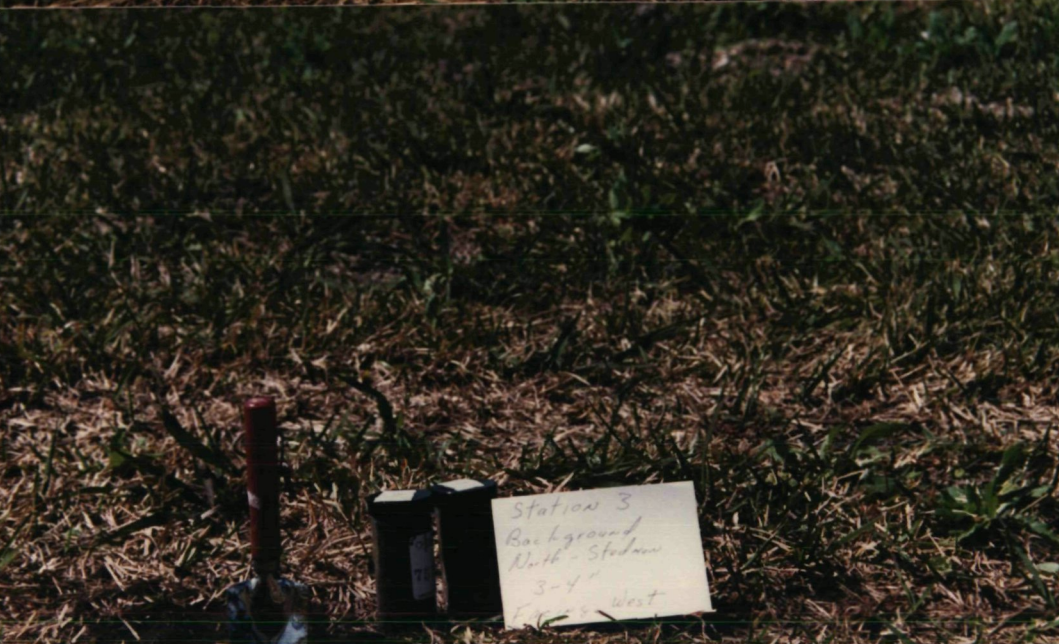
A. Horne / Terry D. Pierce

Date / Time / Direction

3/4/87 936 West

Comments: Arid 52

2.5 ft depth



Photographer / Witness

A. Horne / Terry D. Pierce

Date / Time / Direction

3/4/87 1230 West

Comments: Sta. #3

North side of Steady Rd.

Off Exxon Property

Background



Exxon Chemical Corp.
Houston, Tex. 77029
Pg. 16 of 24

Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/4/87 9:55 North

Comments: Grid 83

3 ft.



Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/4/87 9:45 East

Comments: Grid 14

3 ft.



Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/3/87 1434 East

Comments: Grid 29

2 ft.

Exxon Chem. Co. Corp.
Houston, Tex. 77029
08. 17 of 24

Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/4/87 1023 South

Comments: Grid 100

3 ft

Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/4/87 10:28 East

Comments: Grid 97

3 ft

Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/4/87 10:35 East

Comments: Grid 141

3 ft



Exxon Chemical Corp.
Houston, Tex. 77029
18. 18 of 24

Photographer / Witness

R. Horne / Nelson Randall

Date / Time / Direction

3/4/87 1140 North

Comments: Grid 76

3 ft.



Photographer / Witness

R. Horne / Nelson Randall

Date / Time / Direction

3/4/87 1156 East

Comments: Grid 129

2 ft.



Photographer / Witness

R. Horne / Nelson Randall

Date / Time / Direction

3/4/87 1147 North

Comments: Grid 176

3 ft.



Exxon Chemical Corp.
Houston, Tex. 77029
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Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/4/87 10:45 East

Comments: Grid 125

3 ft.



Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/4/87 11:20 East

Comments: Grid 26

3 ft.



Photographer / Witness

R. Horne / Mike Sandak

Date / Time / Direction

3/4/87 12:33 South

Comments: Grid 121

3 ft.

Exxon Chemical Corp.
Houston, Tex. 77029
Pg. 20 of 24

Photographer / Witness

R. Horne / Delmar Canale

Date / Time / Direction

3/4/87 1135 North

Comments: Arid 22

3 ft

Photographer / Witness

R. Horne / Delmar Canale

Date / Time / Direction

3/4/87 917 North

Comments: Arid 13

3 ft

Photographer / Witness

R. Horne / Delmar Canale

Date / Time / Direction

3/5/87 8:40 North

Comments: Arid 191

2 ft.



Exxon Chemical Corp.
Houston, Tex. 77029
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Photographer / Witness

R. Horne / Mike Boudich

Date / Time / Direction

3/5/87 902 East

Comments: Grid 185

2 ft



Photographer / Witness

R. Horne / Mike Boudich

Date / Time / Direction

3/4/87 935 East

Comments: Grid 30

3 ft.



Photographer / Witness

R. Horne / Mike Boudich

Date / Time / Direction

3/5/87 922 North

Comments: Grid 171

2.5 ft

Exxon Chemical Corp.
Houston, Tex. 77029
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Photographer / Witness

R. Horne / Dale Sandak

Date / Time / Direction

3/5/87 1058 North

Comments: Station 16, Surface

200 ft west of Sta. 17

Across from pump station
off site

Photographer / Witness

R. Horne / Dale Sandak

Date / Time / Direction

3/5/87 1052 South

Comments: Station 17 Surface

200 ft West of S.E. corner
of property. offsite

Photographer / Witness

R. Horne / Dale Sandak

Date / Time / Direction

3/5/87 1043 West

Comments: Station 18 Surface

200 ft. North of SE corner
of landfarm. offsite between
fence & creek



Station
Behind
North of
Facing
10/18

Exxon Chemical Corp.
Houston, Tex, 77029
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Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/5/87 10:18 East

Comments: Station 22

Behind Blue House north
of land form



Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/5/87 905 West

Comments: Station 4

Background - Westside of
property across from
receiving dock



Station 19
10/18
200 ft. south of
N.E. corner of
property

Photographer / Witness

R. Horne / Debra Sandak

Date / Time / Direction

3/5/87 1033 East

Comments: Station 19, Surface

200 ft. south of N.E.
Corner of property offsite



Exxon Chemical Corp.
Houston, Tex. 77029
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Photographer / Witness

R. Horne [signature]

Date / Time / Direction

3/5/87 North

Comments: Grid 159

2 ft.



Photographer / Witness

R. Horne [signature]

Date / Time / Direction

3/3/87 9:18 East

Comments: Grid 3

Surface



Photographer / Witness

R. Horne [signature]

Date / Time / Direction

3/5/87 North

Comments: Grid 174

2 ft